



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

December 22, 1997

Mr. Roy Cellan  
Homestake Mining Company  
P.O. Box 98  
Grants, New Mexico 87020

SUBJECT: DELETION OF THE MCKINLEY COUNTY ION-EXCHANGE FACILITY,  
AMENDMENT 29 TO SOURCE MATERIAL LICENSE SUA-1471

The U. S. Nuclear Regulatory Commission staff has completed its review of Homestake Mining Company's (HMC's) request to remove the auxiliary ion-exchange facility in McKinley County, New Mexico, from License SUA-1472, as requested in HMC's letters dated December 10, 1996, and supplemented by letters dated April 10, 1997, and October 23, 1997. The staff has determined that cleanup of the McKinley County site was acceptable, as discussed in the Technical Evaluation Report (TER), which is Enclosure 1.

Therefore, pursuant to Title 10 of the Code of Federal Regulations (10 CFR), Part 40, Source Material License SUA-1471 is hereby amended by deleting the IX facility from License Condition No. 9 as discussed in the TER. All other conditions of this license shall remain the same. The license is being reissued to incorporate the above modifications (Enclosure 2).

An environmental report is not required from HMC, since the amendment does not meet the criteria of 10 CFR 51.60(b)(2). An NRC staff environmental assessment was not performed, since this action is categorically excluded under 10 CFR 51.22(c)(11).

If you have any questions regarding this letter or the enclosures, please contact the NRC Project Manager for the HMC site, Ken Hooks, at (301) 415-7777.

Sincerely,

Joseph J. Holonich, Chief  
Uranium Recovery Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

Docket No.: 40-8903  
License No.: SUA-1471  
Amendment No. 29

Enclosures: As stated

cc: J. Virgona, DOE GJPO  
M. Hanning, NMED Santa Fe

December 22, 1997

Mr. Roy Cellan  
Homestake Mining Company  
P.O. Box 98  
Grants, New Mexico 87020

SUBJECT: DELETION OF THE MCKINLEY COUNTY ION-EXCHANGE FACILITY,  
AMENDMENT 29 TO SOURCE MATERIAL LICENSE SUA-1471

The U. S. Nuclear Regulatory Commission staff has completed its review of Homestake Mining Company's (HMC's) request to remove the auxiliary ion-exchange facility in McKinley County, New Mexico, from License SUA-1472, as requested in HMC's letters dated December 10, 1996, and supplemented by letters dated April 10, 1997, and October 23, 1997. The staff has determined that cleanup of the McKinley County site was acceptable, as discussed in the Technical Evaluation Report (TER), which is Enclosure 1.

Therefore, pursuant to Title 10 of the Code of Federal Regulations (10 CFR), Part 40, Source Material License SUA-1471 is hereby amended by deleting the IX facility from License Condition No. 9 as discussed in the TER. All other conditions of this license shall remain the same. The license is being reissued to incorporate the above modifications (Enclosure 2).

An environmental report is not required from HMC, since the amendment does not meet the criteria of 10 CFR 51.60(b)(2). An NRC staff environmental assessment was not performed, since this action is categorically excluded under 10 CFR 51.22(c)(11).

If you have any questions regarding this letter or the enclosures, please contact the NRC Project Manager for the HMC site, Ken Hooks, at (301) 415-7777.

Sincerely,

Original Signed By  
Joseph J. Holonich, Chief  
Uranium Recovery Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

Docket No.: 40-8903  
License No.: SUA-1471  
Amendment No. 29  
Case Closed: L51500

Enclosures: As stated

cc: J. Virgona, DOE GJPO  
M. Hanning, NMED Santa Fe

DISTRIBUTION: File Center DWM r/f PUBLIC NMSS r/f CAbrams  
URB r/f CCain RIV AGarcia MFederline MLayout  
ACNW CNWRA MRodgers

DOCUMENT NAME: S:DWM\URB\IKR\HMC29

OFC	URB	E	URB	E	URB	N			
NAM	KHooks/aeg/cc		DGillen		JHolonich				
TE	12/10/97	†	12/22/97	H	12/22/97				



TECHNICAL EVALUATION OF THE  
COMPLETION REPORT FOR THE HOMESTAKE MINING COMPANY  
MINE WATER ION-EXCHANGE PLANT  
MCKINLEY COUNTY, NEW MEXICO

DATE: November 19, 1997

DOCKET NO. 40-8903                      LICENSE NO. SUA-1471

LICENSEE: Homestake Mining Company of California

FACILITY: Homestake Grants Mill, Cibola County, New Mexico

PROJECT MANAGER: Kenneth Hooks

TECHNICAL REVIEWER: Elaine Brummett

SUMMARY AND CONCLUSIONS:

The Homestake Mining Corporation of California (HMC) submitted the "Decommissioning Report for the Mine Ion-Exchange Plant" by letter dated April 10, 1997, and supplemental information dated October 23, 1997. The auxiliary (or mine water) ion-exchange (IX) facility (or plant), located about twelve miles North of the Grants Mill site (in McKinley County), was decommissioned in 1992, and U. S. Nuclear Regulatory Commission staff performed a confirmatory survey in 1993. Based on review of the available data and considering the site locale, NRC staff determined that the auxiliary IX facility cleanup meets the applicable requirements of 10 CFR 40, Appendix A, Criterion 6(6).

AMENDMENT REQUEST:

By letter of December 10, 1996, HMC requested that the auxiliary IX facility be removed from License SUA-1471 (License Condition 9) because the IX facility had been reclaimed.

BACKGROUND:

The mine water IX facility operated between 1957 and 1989 to remove uranium from water pumped from two underground uranium mines. The facility consisted of two buildings, above ground pipes, a tank (surge pond), and a settling pond. Decommissioning of the plant (removal of the buildings, equipment, and contaminated soil and covering the area with 2 feet of clean fill) was completed in August of 1992. The removed soil, building components, and contaminated piping were placed in the HMC Grants Mill tailings disposal cell.

Decommissioning of the pumps and piping which transported the source material (mine water) from the mines to the IX plant, surge pond, and other related piping was done under the mine reclamation program because NRC licensed material was not involved in this system.

TECHNICAL EVALUATION:

The reclamation (decommissioning) plan for HMC's Grants Mill operation, submitted in January 1991, included discussion of the reclamation of the auxiliary IX facility located in McKinley County. The plan indicated on page 14 that gamma and radium surveys would be done for the mill facility, auxiliary IX plant, and ore storage area. The final survey plan proposed by HMC



(page 15) was rejected by NRC staff and was replaced by License Conditions 29A and 29B. However, these conditions only refer to the inner and outer portions of the mill site. NRC staff considers that L.C. 29B, requiring verification measurements to consist of soil samples for Ra-226 content at least every 100 meters and gamma readings every 10 meters, should apply to those portions of the auxiliary IX facility contaminated with NRC licensed material.

The data provided in Tables 3-1 and 3-2 of the cleanup report demonstrate that the appropriate number of verification data were obtained and that any elevated Ra-226 levels were associated with natural material (in situ, i.e. unprocessed, ore). The radium cleanup standard in 10 CFR Part 40, Appendix A, Criterion 6(6), does not apply to the cleanup of this unprocessed material.

A quality assurance program for the radiological data was not proposed in the 1991 reclamation plan, but the NRC inspection report dated June 2, 1993, indicated that records related to the auxiliary IX facility decommissioning were reviewed by NRC staff and no problems were noted. Six soil samples were taken at the auxiliary IX plant site during the inspection and analytical results indicate that the one slightly elevated Ra-226 value was due to natural material, as the uranium value was also elevated.

The ditch south of the auxiliary IX plant received the effluent from the settling pond under a permit, but also received mine water run off from several mines not owned by HMC. NRC inspectors took soil samples in the ditch, three in May 1993 and one sample from the ditch bank upstream of the former IX site and another from downstream in February 1997. The resulting Ra-226 and U-nat values indicate natural material, not by-product material. Therefore, NRC staff concludes that the cleanup of the ditch, accomplished as part of the mine reclamation, also removed any byproduct material.

The HMC auxiliary IX completion report states that the elevated gamma and Ra-226 values near roads, ditch, and other nearby locations are considered to be due to ore spillage, or to mine water drainage, or other contamination from mining. The NRC staff realizes that there was ore spillage along the adjacent ore haul roads, however, Table 3-1 of the report presents gamma data indicating that four locations between the settling pond and IX building had elevated readings that might be associated with byproduct spillage. HMC stated that the area had been excavated up to three feet deep and backfilled with approximately two feet of clean soil. Also, because of the nearby areas of elevated background radiation and the future land use (mining and grazing), there is an insignificant health risk. The staff determined that the elevated gamma readings could be due to the natural radioactive material known to exist on the site. Considering the remote location, current and probable future land use, and depth of backfill on the site, further remediation or testing is not warranted.

#### CONCLUSIONS:

The staff considers that the NRC inspection report and the HMC completion report provide reasonable assurance that the auxiliary (mine water) IX facility in McKinley County has been reclaimed in accordance with the applicable portions of 10 CFR Part 40 Appendix A, Criterion 6(6), Part 40.42, and L.C. 29. Therefore, the auxiliary IX facility can be removed from License Condition 9.

#### ENVIRONMENTAL IMPACT EVALUATION:

An environmental report from Homestake is not required by 10 CFR 51.60(b)(2), since this amendment will not authorize or result in: (i) a significant expansion of a site, (ii) a significant change in the types of effluents, (iii) a significant increase in the amount of effluents, (iv) a significant increase in individual or cumulative occupational radiation exposures, or (v) a

significant increase in the potential for or consequences from radiological accidents. An NRC staff environmental assessment was not performed, since this action is categorically excluded under 10 CFR 51.22(c)(11), as: (i) there is no significant increase in the amounts of any effluents that may be released offsite, (ii) there is no significant increase in individual or cumulative occupational radiation exposure, (iii) there is no significant construction impact, and (iv) there is no significant increase in the potential for, or consequences from, radiological accidents.



**MATERIALS LICENSE**

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee			
1.	Homestake Mining Company	3. License Number	SUA-1471, Amendment No. 29
2.	P.O. Box 98 Grants, New Mexico 87020	4. Expiration Date	Until NRC determines site reclamation is adequate. [Applicable Amendment: 12]
		5. Docket or Reference No.	40-8903

6. Byproduct, Source, and/or Special Nuclear Material	7. Chemical and/or Physical Form	8. Maximum Amount that Licensee May Possess at Any One Time Under This License
Uranium	Any	Unlimited

9. Authorized Place of Use: The licensee's uranium mill located in Cibola County, New Mexico, County, New Mexico. [Applicable Amendment: 12, 29]

10. This license authorizes only the possession of residual uranium and byproduct material in the form of uranium waste tailings and other byproduct waste generated by the licensee's past milling operations in accordance with Tables 1 and 3 and the procedures submitted by letter dated September 2, 1993, as modified by letter dated March 7, 1996.

Anywhere the word "will" is used, it shall denote a requirement.

[Applicable Amendments: 2, 6, 12, 16, 24]

11. DELETED by Amendment 21.

12. Periodic embankment inspections of the large and small tailings embankment shall be conducted by knowledgeable individuals who are familiar with the site and mining operations. An annual status report shall be included in the Semi-Annual Environmental Report for the second half of the year.

[Applicable Amendments: 2, 12, 14, 24]

13. DELETED by Amendment No. 27.

14. Any equipment, supplies or manpower that come in contact with tailing sand and/or slimes will be determined to be free of radioactive material by a personal scan and equipment decontamination. [Applicable Amendment: 21]

15. The results of all effluent and environmental monitoring required by this license shall be reported in accordance with 10 CFR 40, Section 40.65, with copies of the report sent to the NRC. Monitoring data shall be reported in the format shown in the attachment to SUA-1471 entitled, "Sample Format



**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

License Number

SUA-1471, Amendment No. 29

Docket or Reference Number 0-8903

for Reporting Monitoring Data." All ground-water monitoring data shall be reported as described in License Condition No. 35. [Applicable Amendments: 5]

16. Before engaging in any activity not previously assessed by the NRC, the licensee shall prepare and record an environmental evaluation of such activity. When the evaluation indicates that such activity may result in a significant adverse environmental impact that was not previously assessed or that is greater than that previously assessed, the licensee shall provide a written evaluation of such activities and obtain prior approval of the NRC in the form of a license amendment.
17. Prior to termination of this license, the licensee shall provide for transfer of title to byproduct material and land, including any interests therein (other than land owned by the United States or the State of New Mexico), which is used for the disposal of such byproduct material or is essential to ensure the long-term stability of such disposal site, to the United States or the State of New Mexico, at the State's option.
18. DELETED by Amendment No. 27.
19. DELETED by Amendment No. 17.
20. DELETED by Amendment No. 21.
21. The site Radiation Protection Administrator (RPA), who is responsible for conducting the site radiation safety program, shall possess the minimum qualifications as specified in Section 2.4.1 of Regulatory Guide 8.31, "Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Mills will be As Low As is Reasonably Achievable." [Applicable Amendment: 27]
22. The results of sampling, analyses, surveys and monitoring; the results of calibration of equipment, reports on audits and inspections; all meetings and training courses required by this license and any subsequent reviews, investigations, and corrective actions, shall be documented. Unless otherwise specified in the NRC regulations, all such documentation shall be maintained for a period of at least 5 years.
23. Standard procedures shall be established for all activities involving radioactive materials that are handled, processed, or stored. Procedures shall enumerate pertinent radiation safety practices to be followed. Additionally, written procedures shall be established for environmental monitoring, bioassay analyses, and instrument calibrations. An up-to-date copy of each written procedure shall be kept in the area to which it applies.  
  
All written procedures shall be reviewed and approved in writing by the RPA before implementation and whenever a change in procedure is proposed to ensure that proper radiation protection principles are being applied. In addition, the RPA shall perform a documented review of all existing procedures at least annually.  
  
[Applicable Amendment: 27]
24. The licensee shall be required to use a Radiation Work Permit (RWP) for all work or nonroutine maintenance jobs where the potential for significant exposure to radioactive material exists and for which no standard written procedure already exists. The RWP shall be approved by the RPA or his designee, qualified by way of specialized radiation protection training, and shall at least describe the



**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

License Number

SUA-1471, Amendment No. 29

Docket or Reference Number  
40-8903

following:

- A. The scope of work to be performed.
  - B. Any precautions necessary to reduce exposure to uranium and its daughters.
  - C. The supplemental radiological monitoring and sampling necessary prior to, during, and following completion of the work.
25. DELETED by Amendment No. 21.
26. Mill tailings, other than small samples for purposes such as research or analysis, shall not be transferred from the site without specific prior approval of the NRC in the form of a license amendment. The licensee shall maintain a permanent record of all transfers made under the provisions of this condition.
27. DELETED by Amendment No. 21.
28. The licensee shall maintain an NRC-approved financial surety arrangement consistent with 10 CFR 40, Criteria 9 and 10, adequate to cover the estimated costs, if accomplished by a third party, for decommissioning and decontamination of the mill and mill site, reclamation of tailings or waste disposal areas, ground-water restoration, and the long-term surveillance fee. Within 3 months of NRC approval of a revised reclamation plan, the licensee shall submit for NRC review and approval a proposed revision to the financial surety arrangement if estimated costs for the newly approved plan exceed the amount covered in the existing financial surety. The revised surety arrangement shall then be in effect within 3 months of written NRC approval.

Annual updates to the surety amount by 10 CFR Part 40, Appendix A, Criteria 9 and 10, shall be submitted to the NRC at least 3 months prior to the anniversary date, which is designated as June 30 of each year. Along with each proposed revision or annual update, the licensee shall submit supporting documentation showing a breakdown of costs and the basis for the cost estimate. The attachment to the license entitled, "Recommended Outline for Site Specific Reclamation and Stabilization Cost Estimates," outlines the minimum considerations used by the NRC in the review of site closure cost estimates.

The licensee's currently approved surety, a Parent Company Guarantee issued by Homestake Mining Company, shall be continuously maintained in an amount no less than \$24,000,000 for the purpose of complying with 10 CFR 40, Criteria 9 and 10, until a replacement is authorized by the NRC. The use of a parent company guarantee necessitates an evaluation of the corporate parent as part of the annual surety update. In addition to the cost information required above, the annual submittal must include updated documentation of the (1) letter from the chief financial officer of the parent company, (2) auditor's special report confirmation of chief financial officer's letter, (3) schedule reconciling amounts in chief financial officer's letter to amounts in financial statements, and (4) parent company guarantee if any changes are appropriate.

[Applicable Amendments: 9, 12, 23, 24, 26]

29. The licensee shall decommission the Homestake Uranium Mill in accordance with Section 2 of the reclamation plan dated January 1991; the licensee's August 28, 1991, response to comments 1-10 of



**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

License Number

SUA-1471, Amendment No. 29

Docket or Reference Number 0-8903

the NRC's August 2, 1991, letter; and Technical Specifications B1 and B2 of the reclamation plan as revised on April 3, 1992. In addition, the licensee shall perform a soil cleanup verification gamma survey and soil sampling program as specified in the submittal of September 15, 1994, and as modified by the submittal of December 13, 1994. [Applicable Amendment: 20]

- A. Deleted by Amendment No. 20.
- B. Deleted by Amendment No. 20.
- C. Deleted by Amendment No. 20.
- D. The licensee shall use only soils obtained from borrow areas outside the restricted area which have not been impacted by site operations to cover the mill disposal area. The location of these borrow areas shall be documented.
- E. The licensee shall implement a quality control (QC) program for the soil cleanup verification program which consists of recounting using offsite gamma spectroscopy equipment or chemical analysis by a vendor laboratory of at least 15 percent of all soil samples collected. In addition, a minimum of 5 percent of the QC samples shall be chemically analyzed. Results of the QC program shall be evaluated by the Radiation Protection Administrator and the evaluation documented at least monthly during the verification sampling program.
- F. All decommissioning activities shall be documented. Within 90 days following the completion of mill demolition and disposal activities, the licensee shall submit to the NRC a report documenting the activities and providing summaries of all data generated as part of the radiation safety program for mill decommissioning. In addition, within 90 days following the completion of the soil cleanup and verification program, the licensee shall submit to the NRC a report documenting the cleanup activities and providing the results of all soil sampling and gamma surveys conducted to verify the adequacy of cleanup.

[Applicable Amendment: 15]

- 30. DELETED by Amendment No. 21.
- 31. DELETED by Amendment No. 27]
- 32. The licensee shall comply with the following:
  - A. DELETED by Amendment No. 27.
  - B. Analysis of urine samples shall utilize an LLD of at least 5 ug/l uranium.
  - C. A copy of the report documenting the annual ALARA audit shall be submitted to the NRC, review within 30 days of completion of the audit.

[Applicable Amendment: 2]

- 33. DELETED by Amendment No. 21.



**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

License Number

SUA-1471, Amendment No. 29

Docket or Reference Number 40-8903

34. DELETED by Amendment No. 4.

35. The licensee shall implement a compliance monitoring program containing the following:

- A. Implement the monitoring program shown in Table 2 as revised by the licensee's August 25, 1997 submittal and Table 3 of the licensee's January 9, 1995, submittal. [Applicable Amendment: 28]
- B. Comply with the following ground-water protection standards at brine evaporation pond point-of-compliance Wells D1 and BP, at the inactive tailings impoundment point-of-compliance Wells Y and X, and at the active tailings impoundment point-of-compliance Wells S4, S3, M5, and DQ with background being recognized in Well P:  
  
chromium = 0.06 mg/l, molybdenum = 0.03 mg/l, selenium = 0.10 mg/l, vanadium = 0.02 mg/l, uranium = 0.04 mg/l, radium-226 and -228 = 5.0 pCi/l, and thorium-230 = 0.30 pCi/l.
- C. Implement the corrective action program described in the September 15, 1989, submittal due to exceeding ground-water protection standards, with the objective of returning the concentrations of chromium, molybdenum, selenium, thorium-230, uranium, and vanadium to the concentration limits specified in 35(B) above.
- D. Operate the lined evaporation pond and enhanced evaporation system as described in the June 8 and 28, 1990, submittals.
- E. Submit a semiannual ground-water monitoring report in accordance with the reporting requirements of 10 CFR 40.65. Also, submit, by February 28 of each year, a performance review of the corrective action program that details the progress towards attaining ground-water protection standards.

[Applicable Amendments: 3, 4, 5, 7, 8, 10, 11, 16, 21]

36. The licensee shall complete site reclamation in accordance with an approved reclamation plan. The ground-water corrective action plan shall be conducted as authorized by License Condition No. 35. All activities shall be completed in accordance with the following schedules.

- A. To ensure timely compliance with target completion dates established in the Memorandum of Understanding with the Environmental Protection Agency (56 FR 55432, October 25, 1991), the licensee shall complete reclamation to control radon emissions as expeditiously as practicable, considering technological feasibility, in accordance with the following schedule:
  - (1) Windblown tailings retrieval and placement on the pile:  
  
For the Large Impoundment - December 31, 1996.  
  
For the Small Impoundment - May 31, 1997.
  - (2) Placement of the interim cover to decrease the potential for tailings dispersal and erosion:



**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

License Number

SUA-1471, Amendment No. 29

Docket or Reference Number 40-8903

For the Large Impoundment - December 31, 1996.

For the Small Impoundment - May 31, 1997.

- (3) Placement of final radon barrier designed and constructed to limit radon emissions to an average flux of no more than 20 pCi/m<sup>2</sup>/s.

For the Large Impoundment which has no evaporation ponds - December 31, 2003.

For the Small Impoundment, tailings pile surface areas are essentially covered by evaporation ponds constructed as part of the ground-water corrective action program. Prior to December 31, 2012, the areas not covered by the evaporation ponds shall have final radon barrier in place. Final radon barrier placement over the entire pile shall be completed within 2 years of completion of ground-water corrective actions.

[Applicable Amendment: 25]

- B. Reclamation, to ensure required longevity of the covered tailings and ground-water protection, shall be complete as expeditiously as is reasonably achievable, in accordance with the following target dates for completion:

- (1) Placement of erosion protection as part of reclamation to comply with Criterion 6 of Appendix A of 10 CFR Part 40:

For the Large Impoundment - September 30, 2004.

For the Small Impoundment - September 30, 2013.

[Applicable Amendment: 25]

- (2) Projected completion of ground-water corrective actions to meet performance objectives specified in the ground-water corrective action plan - May 1, 2010.

- C. Any license amendment request to revise the completion dates specified in Section A must demonstrate that compliance was not technologically feasible (including inclement weather, litigation which compels delay to reclamation, or other factors beyond the control of the licensee).

- D. Any license amendment request to change the target dates in Section B above, must address added risk to the public health and safety and the environment, with due consideration to the economic costs involved and other factors justifying the request such as delays caused by inclement weather, regulatory delays, litigation, and other factor beyond the control of the licensee.

[Applicable Amendment: 13, 22]

- 37. The licensee shall reclaim the large and small tailings impoundments as stated in their October 29, 1993, submittal, including the following requirements.



**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

License Number

SUA-1471, Amendment No. 29

Docket or Reference Number

40-8903

1993, submittal, including the following requirements.

- A. The radon barrier for the large tailings pile shall be in accordance with material types, thicknesses and placement criteria described in Homestake Mining Company's *Final Radon Barrier Design for the Large Tailings Pile*, submitted June 16, 1995.
- B. The radon barrier for the small tailings pile shall be constructed in accordance with material types, thicknesses, and placement criteria described in Homestake Mining Company's *Final Radon Barrier Design for the Small Tailings Pile*, transmitted to the NRC in August 1996 [Applicable Amendment: 27].
- C. The licensee shall submit a construction quality control program for NRC review and approval prior to placing any portion of the radon barrier that will ensure that the specification which limits the activity of the radon barrier material to 5 pCi/g above background is not exceeded.
- D. The construction quality assurance and control program shall be as defined in the Staff Technical Position On Testing and Inspection (NRC, 1989). The acceptable correlation between ASTM D 2922 and ASTM D 1556 shall be as defined in the licensee's April 30, 1992, submittal.
- F. The radon barrier shall not be placed on the top surface of the large tailings impoundment until the settlement has been demonstrated to be at least 90 percent of expected settlement, and the results of this determination have been reviewed and accepted by the NRC. The radon barrier may be placed on the large impoundment side slopes following final grading of the impoundment. Care shall be taken to preclude the possibility of ponding. Before the erosion protection is placed, it shall be verified that the radon barrier material meets the specifications.
- G. The adequacy of the erosion protection proposed for the side slopes of both the large and small impoundments shall be reevaluated considering any increases in impoundment heights due to the revised radon attenuation cover design.
- H. DELETED by Amendment No. 21.
- I. A completion report shall be provided within 6 months of the completion of construction. This report, including as-built drawings, shall verify that reclamation of the site has been performed according to the approved plan. The report shall also include summaries of results of the quality assurance and control testing to demonstrate that approved specifications were met.

[Applicable Amendments: 14, 21, 22]

- 38. The licensee is authorized to use water collected as part of the site ground-water corrective action program for conditioning soils during placement of the interim cover or the radon barrier on the tailings impoundments. The licensee shall also analyze samples of the collection water being used for this purpose for radium-226 and 228 content semiannually. If sample results exceed 30 pCi/l combined radium, the licensee shall perform an evaluation of the potential impacts of using this water on the required design of the radon barrier and submit the evaluation for NRC review within 30 days of receipt of sample results. [Applicable Amendment: 18]
- 39. The licensee is authorized to construct and operate a lined evaporation pond, located between the existing evaporation pond (#1) and the existing brine ponds, in accordance with plans and commitments contained in submittals and correspondence from Homestake Mining Company dated July 26, 1994; August 16, 1994; August 19, 1994; and September 2, 1994; and September 15, 1994. Final reclamation shall consist of movement of liner and dike material to the small tailings



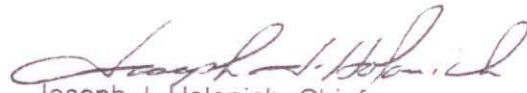
**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

License Number	SUA-1471, Amendment No. 29
Docket or Reference Number	40-8903

impoundment. Underlying soils will be sampled for radium-226 content, and if above site standard of 5.5 pCi/gram, soils will be excavated and placed on the small impoundment. [Applicable Amendment: 19, 27]

FOR THE NUCLEAR REGULATORY COMMISSION

Date Dec 22, 1997



Joseph J. Holonich, Chief  
Uranium Recovery Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards